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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,786	06/26/2003	Ulrich C. Boettiger	M4065.0913/P913	3463
24998	7590	09/20/2004	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			TRA, TUYEN Q	
2101 L STREET NW			ART UNIT	
WASHINGTON, DC 20037-1526			PAPER NUMBER	
			2873	

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,786

Applicant(s)

BOETTIGER, ULRICH C.

Examiner

Tuyen Q Tra

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 13-33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-12 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Restriction\Election

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-12 and 34, drawn to an optical in semiconductor, classified in class 257, subclass 432.
 - II. Claims 13-33, drawn to a method for forming a semiconductor micro-lens, classified in class 430, subclass 321.
2. The inventions are distinct, each from the other because of the following reasons; Inventions I and II are related as micro-lens and process of making product. The inventions are distinct if either or both of the following can be shown: I) apparatus device claims comprising of lens structures; (II) the method as claimed in group II can be used to make other and materially different product.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Peter McGee on September 7, 2004 a provisional election was made without traverse to prosecute the invention of group I, claims 1-12 and 34. Affirmation of this election must be made by applicant in replying to this Office Action. Claims 13-33 are cancel from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

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5. The drawings in this application are objected to by the Draftsperson as for the reasons noted on the attached Notice of Draftsperson's Patent Drawing Review, form PTO-948.

Claim Objections

6. Claim 30 recite "capable of" in line 4. Since it has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138. The examiner suggests replace "capable of" with "operable for".

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4, 6-8 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Lear (U.S. Pat. 5,633,527 A).

a) With respect to claim 1, Lear discloses a unitary lens semiconductor device in Figure 3 comprising a block of lens material (item 30) formed on a support surface (item 16), wherein cut-out portions (item 32, access regions 32 formed by an etching or lift-off mask 32) are central part of the block of lens material (col. 10, lines 41-65).

b) With respect to claim 4, Lear discloses a mask area (item 10); and at least one exposure opening within the mask area (item 32) adapted to form at least one cutout portion (34) in the intermediate lens structure.

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- c) With respect to claim 6, Lear further discloses wherein the exposure is symmetrical (Figure 1 shows the exposures 34 are symmetric since the left and right exposures 34 are symmetric to the middle exposure 34).
- d) With respect to claims 7 and 8, Lear discloses a unitary lens semiconductor device in Figures 1 and 3 comprising an array of micro-lenses structure (item 10), an array of masks (item 30), each mask (30) comprising a mask area and at least one exposure opening (item 32) within the mask area (30) adapted to form at least one cut-out portion (item 32) in a respective one of the intermediate lens structures (10); wherein the mask areas comprising an opaque area (a silicon nitride, silicon oxide, silicon oxynitride, metal silicide, col.11, lines 29-35).
- e) With respect to claim 34, Lear discloses a unitary lens semiconductor device in Figure 3 comprising a semiconductor micro-lens formed from an intermediate semiconductor and having a radius defined during fabrication by reducing mass from a centralized portion of the intermediate structure (see Fig. 3).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lear (U.S. Pat. 5,633,527 A).

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a) With respect to claims 2 and 3, Lear discloses a unitary lens semiconductor device in Figure 3 comprising a block of lens material (item 10) formed on a support surface (item 16), wherein cut-out portions (item 32, access regions 32 formed by an etching or lift-off mask 32) are central part of the block of lens material (col. 10, lines 41-65). Lear does not disclose the block of lens material comprises a spun-on transparent photosensitive polymer. However, Lear discloses the mask (30) can be of a silicon nitride, silicon oxide, siliconoxynitride, metal silicide, or refractory metal mask

Since the material for making such block of lens is varied, the selection of spun-on transparent photosensitive polymer are seem as design experience upon the environment of use to ensure optimum performance. In additional, the Applicant has presented no discussion in the specification which convinces the Examiner that the use of such spun-on transparent photosensitive polymer has more technical advantage to the structure of lens. Therefore, it would have been obvious at the time the invention was made to a person having skill in the art to use spun-on transparent photosensitive polymer in block of lens structure for purpose of lowing manufacture cost.

b) With respect to claim 5, Lear discloses a mask area (item 10); and at least one exposure opening within the mask area (item 32) adapted to form at least one cutout portion (34) in the intermediate lens structure. Lear discloses that the exposure openings are symmetric. In addition, Applicant's present no discussion in specification (page 13, paragraph 0046) which convinces the examiner such non-symmetrical openings could bring any technical advantage for such structure. It is, therefore, obvious to one skill in the art to modify the Lear's symmetric openings to non-symmetric openings for reducing manufacturing cost.

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Allowable Subject Matter

11. Claims 9-12 are allowed.

The reason for the indication of allowable subject matter is that (claim 9) one pull-back mask portion adapted to link a pair of intermediate lens structure together to retard pull-back of the resulting micro-lens disclosed in the claims is not found in the prior art.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) Berger et al. (U.S. 5,561,008A) discloses a process for device fabrication using projection lithography and an apparatus therefor in figure 5 comprising a support structure (10) with an opening (120) on masking layer.
- b) Ohtsu et al. (U.S. 6,707,612 B2) discloses a method of manufacturing micro-lens array, electrolyte and manufacturing apparatus used therefor in Figure 3 comprising of a supporting layer (71) and masking layer with openings on the layer (71).

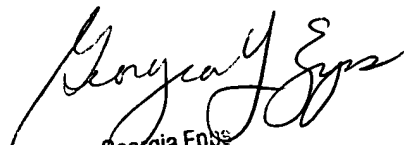
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen Tra whose telephone number is (571) 272-2343.

The examiner can normally be reached on Monday to Thursday from 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps, can be reached on (571) 272 - 2328. The fax number for this Group is (703) 872-9306.

tt

September 7, 2004


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800